1. A method for identifying a muscle stem cell, the method comprising providing a sample comprising a myogenic cell, and detecting activity of a Bcl-2 promoter within the myogenic cell as an indication that the myogenic cell is a muscle stem cell.

2. The method of claim 1, wherein the activity of the Bcl-2 promoter is detected by detecting a Bcl-2 protein in the myogenic cell.

3. The method of claim 2, wherein the Bcl-2 protein is detected in an immunoassay.

4. The method of claim 1, wherein the activity of the Bcl-2 promoter is detected by detecting Bcl-2 mRNA in the myogenic cell.

5. The method of claim 1, wherein the Bcl-2 promoter is operably linked to a heterologous reporter gene.

6. The method of claim 5, wherein the activity of the Bcl-2 promoter is detected by detecting a polypeptide encoded by the heterologous reporter gene.

7. A method for determining whether a test compound modulates muscle stem cell differentiation, the method comprising:

(a) providing a myogenic cell identified as a muscle stem cell;

(b) contacting the muscle stem cell with the test compound; and

(c) detecting a change in differentiation of the muscle stem cell as an indication that the test compound modulates muscle stem cell differentiation.

8. The method of claim 7, wherein the myogenic cell is identified as a muscle stem cell by detecting activity of a Bcl-2 promoter in the myogenic cell.

9. A method for determining whether a test compound modulates muscle stem cell proliferation, the method comprising:

(a) providing a myogenic cell identified as a muscle stem cell;

(b) contacting the muscle stem cell with the test compound; and

(c) detecting a change in proliferation of the muscle stem cell as an indication that the test compound modulates muscle stem cell proliferation.

10. The method of claim 9, wherein the myogenic cell is identified as a muscle stem cell by detecting activity of a Bcl-2 promoter in the myogenic cell.

11. A method for producing a population of cells enriched for muscle stem cells relative to a reference population of cells, the method comprising:

providing a reference population of cells comprising a plurality of muscle stem cells and at least one cell other than a muscle stem cell;

introducing into the reference population of cells a genetic construct comprising a Bcl-2 promoter operably linked to a gene encoding a marker protein that is

heterologous to wild-type cells of the reference population, thereby producing a transfected population of cells; and

selecting from the transfected population of cells those cells that express the marker protein, thereby producing a population of cells enriched for muscle stem cells.

12. The method of claim 11, wherein the marker protein is a cell surface polypeptide.

13. The method of claim 11, wherein the gene encoding the marker protein is selected from the group consisting of CD8, influenza virus hemagglutinin, β-galactosidase, green fluorescent protein, catechol 2,3-dioxygenase, and aequorin.

14. A method for producing a population of living cells enriched for muscle stem cells relative to a reference population of cells, the method comprising:

providing a reference population of living cells comprising a plurality of muscle stem cells that express Bcl-2 and at least one cell other than a muscle stem cell; and

treating the reference population of cells to induce apoptosis in cells that do not express Bcl-2, thereby producing a population of living cells enriched for muscle stem cells.

15. The method of claim 14, wherein the treatment comprises contacting the reference population of cells with staurosporine and serum-free medium.

16. A method for expressing an exogenous coding sequence in a muscle stem cell, the method comprising:

(a) providing a myogenic cell identified as a muscle stem cell;

(b) introducing into the muscle stem cell a genetic construct comprising an exogenous coding sequence operably linked to a muscle stem cell-active promoter, to produce a transfected muscle stem cell; and

(c) maintaining the transfected muscle stem cell under conditions permitting expression of the exogenous coding sequence.

17. The method of claim 16, wherein the muscle stem cell-active promoter is a Bcl-2 promoter.

18. The method of claim 16, wherein the cell is identified as a muscle stem cell by detecting activity of a Bcl-2 promoter in the cell.

19. The method of claim 16, wherein the genetic construct is introduced into the muscle stem cell *in vitro*.

20. The method of claim 16, further comprising introducing the transfected muscle stem cell into a mammal, and maintaining the transfected muscle stem cell under conditions such that the exogenous coding sequence is expressed in the mammal.